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ABSTRACT

The structure of inquiry in art is a set of behavioral stages, comparable with creative process stages, in which persons think in and about the visual mode of perception. The stages include behaviors identified by Dewey as factors or phases of reflective thought and as stages in the pattern of inquiry. The stages also show relatedness to problem solving, critical thinking behaviors, and other delineations of inquiry that can be extended into practice by art teachers. The behavioral stages of inquiry in art are: (1) set a direction, arouse an interest, note a problem worthy of interest; (2) discover, experiment, find a focus; (3) visually analyze, examine closely; (4) classify, sort, organize, form concepts; (5) personally analyze, reflect, and react to personal preferences; (6) select, hypothesize, give form to an idea; (7) elaborate, modify, restructure; (8) synthesize; and (9) self-evaluate, as artist or as critic. (FG)

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Stages of Inquiry in Art:

Model, Rationale and Implications

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ABSTRACT

STAGES OF INQUIRY IN ART:

MODEL, RATIONALE, AND IMPLICATIONS

The structure of inquiry in art is proposed as a comprehensive model of behaviors that are involved as persons respond to and produce in the visual mode. The behaviors are described as: Set a direction, Discover, Visually analyze, Classify or sort, Personally analyze, Select, Reorder or change, Synthesize, and Self-eveluate.

The behavioral stages were identified experientially and theoretically--from historical and contemporary reports by artists and critics, that coincide with theoretical descriptions of related constructs.

Descriptions of these behaviors eventually could lead to specific pedagogical recommendations, but only general suggestions are inferred in this paper.

Aspects of this model in its stages of development have previously been shared by the author as follows: MidAmerica College Art Association Conference, 1982; National Art Education Association, Seminar for Research in Art Education Conference, 1981; National Symposium for Research in Art, 1980; National Art Education Association Conference, 1978 ; Northern Illinois Association for Educational Research, Evaluation, and Development,1978; National Art Education Association Study Institute, 1976; Illinois Art Education Association Conference, 1975; and Chicago Art Teachers Association Meeting, 1973. Related ideas were developed with N. Armstrong in Studies in Art Education, 1977, 18 (3), 53-64.

Stages of Inquiry in Art:

Model, Rationale and Implications

"Persons do not just think at large, nor do ideas arise out of nothing" John Dewey (1910, p. 72).

People in different disciplines inquire, think, and create in some common ways. Some have attempted to describe this process, offering constructs that fit the logic of their theories. Often the constructs of one theory bear great resemblance in operational definition to constructs of a different theory. The process of searching for problems or answers to problems has been labeled "inquiry" by some, "problem solving", "creative, or scientific process", or "reflective thinking" by others. Different authors refer to tasks, steps, types, patterns, skills or stages in describing categories or sequences of behaviors involved. This paper will define stages of the process of seeking to know (inquiry) in art, the commonalities in different theoretical constructs related to inquiry, and parenthetically, the appropriateness of each stage of inquiry in art for teaching art.

The Proposed Structure

The structure of inquiry in art is a set of behavioral stages in which persons are involved as they think in and about the visual mode. It was influenced by theory related to inquiry in general and by empirical evidence. The initial identification of the stages of inquiry in art was prompted by theoretical descriptions of inquiry and by what seemed to be related constructs. Empirically, the stages are a classification evolving from 1) observation and

analysis of my own and peers' procedures while painting, 2) categorization of written descriptions by some artists of their procedures, and 3) comparison of descriptions by fellow artists and art students with the emerging structure to see if the hypothesized structure could accommodate their testimonies. These procedures contributed elaborations, modifications and revisions of some stages and definitions.

The behavioral stages described as the structure of inquiry in art are:

Set a direction: arouse an interest, be curious, note a problem worthy of attention.

Discover: experiment, find a focus, respond to phenomena or effects.

Visually analyze: look specifically, examine closely.

Classify, Sort: categorize and organize information observed, form concepts

Personally analyze: reflect on personal preferences and meanings, react to objective observations

Select, Hypothesize: combine information and preferences to give form to an idea.

Reorder, Change: elaborate, modify, restructure.

Synthesize: come to closure, accept one's resolution.

Self-evaluate: summatively evaluate; revisit the effectiveness of processes, techniques; affirm the concept.

Although there is a general progression through the stages as listed, no regimented linear progression is implied. Suggestions for possible variations shown in Figure 1 warrant a separate explication at another time.

Insert Figure 1 about here

Importance of Inquiry in Art to Art Education

Inquiry in art is worthy of attention for its contribution to basic knowledge in the field of art, and, for its possible extension into pragmatic theory and pedagogical application to art education. The need for art educators to explore the cognitive nature of their subject has been cited by Engel (1978) and others. Sound, but uncomplicated theory which art teachers can extend into practice could make an impact on the field of art education.

Many educators identify a principle goal for education as: to create persons who are discoverers, who are critical thinkers, and who learn by their active involvement how to verify information. Arnheim (1974) emphasized the need for perception of form (specific, expressive visual qualities) as well as the more common perception of global effects for repleteness of knowing. Such perception involves conscious inquiry on the part of students. It follows that art teachers who understand the inquiry process could better facilitate inquiry in their students. Moreover, in art, where manipulation of media, varied resources, opportunity for physical mobility, and individual direction are more common, some fewer barriers to an inquiry approach might exist than in other subject areas. Art teachers have an opportunity to demonstrate a unique contribution of art education while more effectively facilitating students' growth in art.

Validity of the Construct

Compatibility between theories of the scientific and creative processes

is claimed by many including Dewey (1938) who wrote, "Persons who are conventionally set off from artists, 'thinkers' scientists do not operate by conscious wit and will to anything like the extent popularly supposed" (p. 73). Olson (1978) referred to almost universally relevant operations identified by Piaget (seriation, rotation, and organization). Barkan (1962) claimed that producing visual art works was not unrelated to the process of critical analysis. Artists, too, have spoken in favor of shared approaches to problems. LeCorbusier and Ozenfant (1920) wrote of logic as an instrument of control and a guide to discovery. Kandinsky (1913) referred to the conscious element in guiding the power within himself. Gabo (1937) wrote, "The creative processes in the domain of art are as sovereign as the creative processes in science. Even for many theorists of art the fact remains unperceived that the same spiritual state propels artistic and scientific activity at the same time and in the same direction" (cited in Herbert, p. 105).

Since the values of order and consciousness of the behaviors involved in a process are voiced by scientists, educators, philosophers, and artists, then the search for more specific possible commonalities of inquiry across disciplines, including art, gains support and feasibility. The paragraphs which follow explicate those specific stages of the structure of inquiry in art by definition, and support their validity by demonstrating consistency with related theories and with artists' testimonies of their experience.

Set a direction

Initial stages of experience or learning have been described as impulsion, aroused expectancy (so that a person would devise ways of searching and

finding) (Dewey, 1958; Gagne, 1974; Bruner, 1961). In the structure of inquiry in art the stage labeled "Set a direction" is defined as a person's:

> Initial attention to a problem to be solved or sought; interest; an urge; a concern; a curiosity; a "want" to be given form and shared; confidence in elaborating on previous learning; an open-ended, life-oriented objective; response to environmental stimuli which arrest attention; the necessity which "mothers" invention.

In problem solving models, this or a similarly defined stage, might be called problem sensitivity, internalized problem, or recognized need. Inquiry structures refer to clarification of the problem or identification of a question or phenomenon to investigate. In describing reflective thinking, Dewey (1910) referred to a felt problem causing doubt, conflict or disturbance similar to Getzel's and Csikszentimihalyi's (1976) entry point in creative stages labeled "conflict." In Eisner's (1965) critical thinking behaviors, the "disposition to wonder" descriptor of the more inclusive questing behavior would seem to compare with direction.

Burchfield (in Bauer, 1956) wrote of the necessity of establishing a mood. Hiram Williams (1971) represents numerous artists who wrote of needing to know what type of piece or idea they want to portray. The specific idea may emerge later out of looking or experimenting, but, an initial inclination to become involved does seem necessary.

Woodruff (1972) recognized the importance of student interest and emphasized consideration of student "wants" in formulating life-oriented goals. The art teacher can anticipate what the students might perceive as potentially

meaningful experiences and use that knowledge to plan the initial encounters with each new problem.

Discover

The second stage of inquiry in art - "discover" - extends the interest-capturing direction by more focus on potential sources of useful information. This may involve media experimentation without predetermined ends. It could be a walk in the woods with an open mind to discovering specific subject matter or formal qualities to portray an as-yet-vaguely-defined mood. The discover stage is defined as:

> finding; noticing what is relevant, but was possibly overlooked before; fooling around; seeking information; noticing what has been taken for granted; finding something which can be examined or studied closely; experimentation; finding focus; responding to the challenge of questions which lead to exploration.

Discovery seems compatible with the phase of learning which Gagne (1974) identified as "attention, selective perception" (p. 33). Bruner (1964) points out that discovery is not restricted to finding what has never been discovered before, but includes ". . . all forms of obtaining knowledge for oneself by the use of one's own mind . . ." (p. 125). Problem-solving models identify a stage commonly called problem formulation (Bruner, 1965; Getzels and Csikszentmihalyi, 1976) and which Dewey (1938) called "selective discrimination of particulars related to, or leading to a problem" in a description of inductive problem solving. Carin and Sund (1978) identify a scientific process stage of "observing". Eisner's (1965) "questing" stage

(a search for the problematic) and Dewey's (1910) relective thinking stage called "suggestions" (possible hypotheses) and "identified problem or hypotheses" (to guide observations for collecting or recalled data) seem to be attending to phases of the stage of discovery. More encompassing yet is the creative process stage of "preparation" identified by Hutchinson (1949) and further developed by Marksberry (1963) among others.

The Burkhart (1970) "perceiving" stage--to sense, notice--fits, in function, with the stage of discover. Other general inquiry models refer to a stage that Suchman (1964) described as "verification" (fact gathering); Dewey (1938) described as "observe facts, propose action to reveal facts"; and Koos (1970) referred to as "seek information from resources."

Conscious openness to discoveries which are worthy of closer attention is important to most artists. In the Michael (1970) study, 60 percent of the artists reported that they sketch and draw in a vague sense to discover ideas. Many artists experiment with their media to invite discovery. According to Gowing (1966), Matisse valued highly his 1905 discovery of the dazzling vibrations set up by extremity in contrast created by equivalent tones of contrasting hues. Bauer (1956) reports that Burchfield returned frequently to nature to rediscover the impressions of mood and effect that were so vivid in his childhood. He returned often to paint in front of an object to experience the emotional state that actual presence produces. His desire to understand nature and its complex patterns led him sometimes in an almost scientific quest for information.

As with direction, the discover stage is identifiable as an important

stage of inquiry in art as well as in other disciplines since focus contributes to the selective attention to pertinent sources of visual information. Art teachers can encourage students' global response to visual effects and experimentation designed to provide a source for continuing learning. As Torrance's (1963) research showed, tasks that allowed manipulation of objects significantly affected the number and flexibility of responses made by children.

Visually analyze

"The observation of nature is part of an artist's life, it enlarges his form-knowledge, keeps him fresh and from working only by formula, and feeds inspiration . . ." Henry Moore (cited in Herbert, 1964, p. 129). Moore recognized the contribution of visual observations to knowledge and inspiration. Important as it is, often mature artists and would-be artists overlook the critical foundation provided by the store of visual information that they have been accumulating throughout life. Habit tends to hide the hierarchy which makes mature creativity possible. As Olson (1978) asserted, "Skills are frequently rendered invisible by our habitual focus on the knowledge specified through the activity" (p. 62). The visually analyze stage of inquiry in art is defined as:

> Looking closely to discriminate specific qualities that contribute to the particular nature of what was noticed (what makes it look that way); making visual differentiations; perceiving specific form (as opposed to global effect); discerning subtle variations in visual qualities; identifying consistency in formal qualities that account for a total visual effect; analyzing media effects, qualities of objects, natural phenomena or any attributes that are visually observable.

Dewey (1938) referred to "gather data" and "operations to produce new data relevant to the problem." Bruner's (1961) search behavior would seem to encompass visual analysis. Gagne's (1974) term differentiation is compatible with visual analysis since it involves a refinement and expansion of subsuming concepts already grasped by the observer. Again, inquiry in art continues to correspond closely with the general inquiry construct. Dewey (1938) referred to "further observations", Koos (1970) to "discriminate between likely and unlikely causes", Suchman (1964) to "experimentation", Burkhart (1970) to "discriminating" and Parsons (1968) to "informational" teacher questions to help students inductively observe attributes that will later help them form a concept.

Keen, analytical observation is basic to clarity and specificity in an artist's creative expression whether directly connected with a particular work or not. Klee (1924) in discussing mobility of the mind, admits concern with microscopy as it contributes to that mobility. Many artists worked with subject matter that was an integral part of their lives. Moore (1937) used drawing as a method of study and observation to enlarge his "form-knowledge experience" . . . information that he claimed also fed his inspiration. According to Lejard (1951), Matisse believed that the process of conception must pass through a certain analytical phase. Conscious or not, it required sensitive visual awareness at some occasion for Burchfield to later recall how he ". . . gazed into warm amber colored water . . ." as Bauer reported (1956, p. 12).

Michael's (1970) survey of contemporary artists showed that artists also recognize the importance of being sensitive to the qualities of their emerging products. Matisse (1947) cut colored paper directly in order to draw in the color . . . to achieve a union of the two processes. Boccioni (1913) noted

how each profile carried in itself a clue to the other profile. Max Beckman in 1938 expressed well the importance of visual analysis for the artist as he wrote,

> Everything intellectual and transcendental is joined together in painting by the uninterrupted labor of the eyes. Each shade . . . is noted eagerly by the intensity of the senses to which is added, in a way of which I am not conscious, the work of my mind, and in the end the strengths and weaknesses of my soul (cited in Herbert, 1964, p. 133).

McFee (1966) related inquiry in art to problem solving by drawing attention to the importance of visual analysis. She wrote,

> It is of particular importance that such training (perceptual) identifies visual analysis as fundamental to conceptual analysis when this aspect of education has been so neglected . . . . Visual analysis and conceptual analysis are processes that are used in problem solving, in design and in evaluating art forms (p. 95, 96).

MacGregor (1975) found that failure to interpret visual material correctly tends to be associated with a lack of knowledge of how to look for key clues to observe characteristics and organize available visual information. This stage is basic to bridging the gap between a global perception of effect and the capability to specifically describe or produce that effect.

If art teachers are to facilitate these observational skills, MacGregor's conclusion would, by inference, give importance to the visual analysis stage and the stage which follows it. In sum, visual analysis--of media effects, objects, symbols, organization of elements, or phenomena--for the purpose of accumulating a store of specific visual data is basic to either

the creative production or aesthetic criticism outcomes of inquiry in art. It is insurance against an intellectual and aesthetic vacuum from which creative thought could never emerge.

Classify

"New ideas come leisurely yet promptly to consciousness only when work has previously been done in forming the right doors by which they may gain entrance" (Dewey, 1958, p. 72). Bruner observed that disorganized information could contribute to confusion--a bombardment of visual data that lacks connectivity--as he wrote, "The key to retrieval is organization, or in simpler terms, knowing where to find information that has been put into memory" (1965, p. 95).

The classification stage of inquiry in art is defined as:

> Clustering observations of objects on the basis of common attributes and similar visual qualities; sorting similar discoveries on the basis of commonalities; coding and relating visual observations; identifying types of effects, techniques, processes, objects, phenomena; organizing information.

In spite of the clear statements by Dewey and Bruner, the problem solving models do not specifically identify classification as a stage. The scientific model does include "collecting and organizing data." The unconscious ordering is a necessary prerequisite to successful conceptualization mentioned as a type of learning by Gagne (1965) and as a cognitive task by Taba (1962). The conceptualization would, be inference, aid comprehension, a stage within Bloom's (1956) cognitive domain behaviors. Burkhart (1970) lists comprehension

as an inquiry behavior whereas other inquiry models are more descriptive. Dewey (1910) mentions selecting and arranging particular facts for intended purpose and Parson's (1968) teacher using leading questions would involve the student in ordering data. Gagne (1974) refers to coding and entering information into storage . . . a memory storage.

In describing the progression from drawing with no preconceptions, through the creation of a work of art, Moore (1937) refers to a point where the idea becomes conscious and a control and ordering begins to take place. According to Lejard (1961, Matisse replaced impulsive spontaneity with a deliberation of design in later works. The classification of visual information and retrieval of information from that system is likely one of the more subconscious stages of inquiry for the mature artist.

Classify, Sort is an important stage from which to draw pedagogical implications even if it has not been recognized in many structures. Saylor and Alexander (1966) write, "Teaching by use of the methods of inquiry and discovery depends on the use of structural propositions for effectiveness" (p. 168). Many adults would instantaneously perform this operation on new data; but as Bruner and others maintain, for children who are initially receiving a large amount of visual information, assistance in learning to organize information is needed.

Bruner (1964) found that classification is a capability of children, and that they have a variety of systems by which they classify. A teacher can aid the organization needed by focusing on visual attributes that lead to development of one concept at a time and by questions which encourage students

to cluster similar attributes as classes of observations. Hunkins (1972) emphasized the need to group facts, react to data classes, grasp inter-relationships such as commonalities among specific observations that build to a subsuming concept, such as, warm hue. To sum, through classification behaviors a person prepares for the accessibility of the perceived visual information. Organization protects against confusion produced by an overload of visual stimuli. The necessity for systemization increases as the fund of knowledge grows.

Personally analyze

The stage of inquiry in art that has been retained in spite of little recognition in problem solving, inquiry, and related constructs is "personally analyze." This stage is vital, however, to art. It recognizes individuality in creative inquiry. The stage is described as:

> Subjectively considering observations to determine personal preferences, possible applications, and associations with personal experiences, values, or life styl ; considering oneself, one's moods and concerns; considering a desired effect of communication; reflection or incubation time; subconscious maturation or extension of information accumulated.

The previous stages of inquiry have dealt primarily with objective information gathering and have involved predominately cognitive behavior. In this stage, personal relevance, subjectivity, and affective behavior gain emphasis. This stage is also in preparation for the next stage where inquirers selectively retrieve objective data that can serve personal preferences. For now, the encouragement is for the inquirer to be aware of his/her individuality.

A few writers have included components in models that seem to relate to the personal analysis stage. Taba's (1962) "interpretation of data" category could allow personal interpretation, and the affective domain (Krathwohl, 1964) does include valuing which encompasses preferences. Hutchinson (1949) identified a stage of incubation in the creative process where direct effort toward problem solution was abandoned. Such a relaxation of directed thinking provides more opportunity for chance new associations to develop. In this time for delaying active thinking, the objective visual information gathered can sift through a filter of personally meaningful concerns and preferences.

Burkhart (1970) gave some emphasis to the kind of behaviors identified as personally analyze. Burkhart included affective behaviors of preferring, empathizing, or appreciating in his inquiry model. Eisner (1965) noted "speculating" as a critical thinking behavior wherein the "creative intuition" gives rise to fantasy or imaginative answers (p. 675).

Artists have guarded their right to prefer, to interpret and to portray their chosen "truth". They have often written of deciding to put work aside for a while in order to let something unplanned emerge. They cherish their individuality and right to interpret or fantasize. The Michael (1970) survey indicated that artists feel that they must be free to take their own predilections and follow through on them. As Bauer (1956) reports, Burchfield said ". . . it is not what a place is that makes for art--it is what the artist feels about it" (p. 45), and Gabo (1939) similarly commented, "The creative genius knows that truths are possible everywhere, but only those truths matter

to it which correspond to its aims and which lie in the direction of its course" (cited in Herbert, 1964, p. 111). If, as is commonly accepted, divergent thinking is a critical element in creative behavior, and, if creative behavior in art may include personal interpretation of objective data, as it has historically allowed, then divergent thinking from the source of a personal perspective makes personal analysis a logical part of inquiry in art. Conscious teacher efforts to establish a psychologically safe classroom environment may be needed for some students to respond to their individuality which is basic to this stage.

Select, Hypothesize

The inquiry in art stages discussed so far provided data--new and recalled knowledge filtered through personal preference--that can contribute to an art product or conclusive statement. Predominately an inductive approach, one could experiment endlessly in inquiry, but a time comes when the relationships recognized urge to be given form. Bruner (1965) describes discovery as ". . . a matter of rearranging or transforming evidence in such a way that one is able to go beyond the evidence so reassembled to new insights" (p. 82). Hutchinson (1949) also refers to "insight"; and Dewey (1910), to "insight into end and method." It seems that Bernard (1972) is referring to this point in inquiry as he writes,

> Because all the data will never be gathered or all alternatives explored, it is necessary to act on tentative conclusions. These tentative conclusions may be regarded as best current guesses, and because they are based on some data, they will be better than stabs in the dark (p. 285).

The description that emerged for what became the "select" stage of inquiry in

art reflects the existence of commonalities reported in the sciences, social sciences and the arts. The select stage involves:

> Hypothesizing appropriate choices from the acquired knowledge base (cognitive, affective, and psychomotor) to begin to make the art product or formulate a verbal generalization; combining objective visual information or formal qualities which aesthetically relate, and also effectively serve the subjective intent of the creator; using cognitive knowledge that can contribute to the intended statement; deciding on the media, technique, symbols, organization, total aesthetic effect, quality and variations of elements or descriptors of these that contribute to the specificity of the effect or communication desired by the artist or art viewer-critic.

In problem solving models, this stage involves hypothesizing, i.e., forming, predicting, making an if-then statement, or designing an investigation. Bruner's (1965) "sensing the relevance of variables", like his "search behavior", could extend through several stages of inquiry in art . . . the relevance being that personal filter which here influences selection. Getzels and Csikszentmihalyi's (1976) stage of "expresses problem" (p. 246) and the reflective thinking stage of "reasoning" (Dewey, 1910) would be involved in "select" as well as in other stages.

The appearance of a hierarchical arrangement begins to emerge in the structure of inquiry in art with the stage select. At this stage, inquiry in art appears to have some commonality with Ausubel's (1962) propositional learning, but more with Gagne's (1965) principle learning (or formation) and

his retrieval phase of learning, Bloom's (1965) application level, and Taba's (1962) application of principles behaviors.

The inquiry models again give considerable attention to this stage. Dewey (1962) refers to the interaction of facts that point to possible solutions or hypotheses and Koos (1970) specifies "select hypothesis", "select method", "identify independent variable", "physical conditions necessary to test", and "choose plan to test". Categories of inquiry questions which would encourage pulling accumulated information together into a big idea are identified as "probing" (Parsons, 1968) or "necessity" (Suchman, 1964). In the affective domain, that relating behavior is inferred in "organization: of a value complex, a value system" (Krathwohl, 1964).

This stage implies a conceptual coming togetherness and would seem to evolve into Eisner's (1965) "constructing" category. Burkart (1970) identified several behaviors which the select stage encompasses, namely, "analyzing (clarity in relationships), "doing", and "applying".

Artists' writings about their creative processes give attention to the point when the idea begins to take form by intent and/or by intuition. Gowing (1966) reports that Matisse referred to "the delicate order of shape in which the color and form of nature best agreed" (p. 19). Artists in Michael's 1970 survey reported that drawing and technique is so well-learned that they become unconscious of it ". . . equating rhythms, intangibles of life into plastic equivalents" (p. 116). Moore (1937) seemed to be describing the stage of "select", when he wrote, ". . . but as my mind takes in what is so produced, a point arrives where some idea becomes conscious and crystallizes, and then

a control and ordering begins to take place . . . and then consciously [I] attempt to build an ordered relationship of forms which shall express my idea" (cited in Herbert, 1964, p. 145). Again both theories about how people think and artists' reports support a stage wherein a simultaneous collusion occurs making use of information toward some personally meaningful ends. Teachers of art need to help their students review attributes of concepts developed and to select from that information what is important for making their personal solution most effective.

Reorder, Change

If artists give attention in the accounts of their work to the moment when the idea begins to come together, they give equal time to the tearing apart, changing, refining, and reordering of their idea and the elements that give it form.

The reorder stage of inquiry in art is defined as being inclusive of such behaviors as:

> Alteration due to feedback from self or others; self checking for the need to return to a source for more or refreshed visual information; substitutions upon analysis of discrepencies between hypothesis and trial, or, change of hypothesis; avoiding premature closure; recalled or related concepts causing modifications in the product; formative or in-process evaluation resulting in change.

Except for references to "rearranging or transforming evidence", "test hypothesis" and "test proposed solution and relate new data to old knowledge" (Dewey, 1910, 1938) and "evaluating" as defined by Eisner (1965), the inquiry

models singularly give attention the stage called reorder. In Dewey's (1938) pattern of inquiry, recognition is given to the need for more observation and trial testing. Koos (1970) mentions "identify data produced by test"; Hutchinson (1949) refers to revision and Burkart (1970), to "transforming".

Artists change their work as it progresses and deviates from their original drawings (Michael, 1970). Noticing change as a factor in their work seems to be the most consistent observation made.

Lautrec constantly changed his work. Burchfield, who claimed to work by trial and error at one time, wrote of "now adding, now destroying" according to Bauer (1956, p. 45). Herbert (1964) reports a relevant Boccioni statement: "Let us break laws . . . look for ways to accomplish what is assumed impossible" (p. 54). According to Gowing (1966), Matisse changed his work freely, and wrote, "I am forced to transpose until eventually my picture may seem completely changed, when after successive modifications, the red has succeeded the green as the dominant color" (p. 12). Hence, the reorder stage of inquiry in art recognizes important behavior noted by artists and certain other theorists. It emphatically underlines the continual importance of review of intent, objective information, and subjective focus or selection to realize the unique, aesthetic product or generalization. It also focuses on the role of the art teacher in helping students to avoid premature closure--the hurried "I'm done" which terminates in-depth study and the most creative responses of which a student is capable.

Synthesis

To insist that a sequence of behaviors that begin must also end may seem

logical on the surface. Indeed, of the related models examined, it is one point on which there is most similarity. However, looking at the creative inquiry process from artists' viewpoints will reveal that not all problems end in resolution, nor do all disquieting senses of direction needing exploration, result in satisfaction. Some paintings remain unfinished or destroyed and ideas abandoned. Enough inquiry does culminate in an end, however, so as to identify (for the ultimate pedagogical usefulness of the structure) the stage of "synthesize". Synthesize is defined as being inclusive of such behaviors as:

> Coming to closure; accepting the response (product, verbalization, etc.) as sufficiently, if temporarily, a satisfactory statement of intent; decision of completeness; fulfilling the demands set for oneself; sensing that the product has taken on a unity or life all its own.

Problem-solving models by Dewey and Bruner refer to resolution and formation of generalizations or problem solution. Getzels and Csikszentmihalyi (1976) call it "resolves conflict". Whereas in early stages, there seemed to be some parallels between scientific process models and inquiry, the scientific process behaviors culminate with "following directions" according to Carin and Sund (1978)--quite unlike the character of synthesis in inquiry in art where the artists' own decision to come to closure is indicated. "Problem solving" or forming "higher order principles or generalizations" culminate Gagne's (1974) hierarchy of types of learning and intellectual skills. Hutchinson's "illumination" (which followed insight) seems to suggest the resolution of the synthesis stage. Again, the inquiry models refer closely to this stage

with the use of the label "synthesis" (Burkhart, 1970; Suchman, 1964). Koos (1970) referred to "identify justifiable conclusions" which can be read to be a culminating synthesis.

The decision of closure by artists can be exemplified by statements that a work is finished when unity is achieved (Williams, 1971; Bauer, 1956). Matisse used the term "synthesis" according to Gowing (1966) in a warning against both prolonged analysis and premature closure, "When the synthesis is immediate, it is premature, without substance, and the impoverished expression comes to an insignificant conclusion, ephemeral and momentary" (p. 10). Artists typically decide to allow work to stand as complete at some point without reordering or destroying it. Art teachers can easily recall instances where students have needed encouragement to stop reworking an idea-encouragement to put on the finishing touch and come to closure on an idea.

Self-evaluate (art work or criticism)

Allowing a work of art to rest as having a satisfying unity may not be the end involvement of the inquirer and the art work. Often a delayed judgement and reflection in anticipation of possible ideas for extended directions is expected as an artist chooses to live with the work for a time. This final, post synthesis stage of inquiry in art is defined as being inclusive of such behaviors as:

> Reviewing aspects or the totality of the response (product or verbalization); planning for future repetitions or variations in approach, committing to memory what was learned; reflecting; evaluating summatively.

It is not an introspective, personal self-evaluation that is intended here, nor

evaluation of the artist's work by another, but a private critique between the artist and his work or critic and his criticism.

Koos and Burkart are among the very few who suggest a stage beyond the final synthesis. Koos (1976) included "identify new questions" and "relate to a store of literature" as inquiry skills. Burkhart (1970) acknowledged "rating" and "valuing" behaviors. Bloom (1956) included evaluation in his cognitive domain and Getzels and Csikszentmihalyi (1976) recognized "achievement of the a new emotional and cognitive balance" (p. 246) as an outcome of resolving conflict that initiated the creative problem-solving process. Hutchinson's (1949) final creative process stages are described as "verification", "elaboration" and "evaluation". Of these stages, elaboration may more appropriately fit with the reorder stage, but the other two behaviors are compatible with the self-evaluation.

Hiram Williams (1971) is among artists who have written about their reactions to a work subsequent to the decision to consider it completed. He reported that a certain painting, viewed later, held "the shock of recognition" that a work of art must hold (p. 4) and wrote "The judge of my work who counts is myself" (p. 2). Moore (cited in Herbert, 1964) mentions criticism of his own work as part of finding qualities that are of fundamental importance. He wrote: "For me a work must first have a vitality of its own . . . independent of the object it may represent" (p. 140). In the same source, Herbert reported Kandinsky's claim that even if the evaluation of one's response or product shows shortcomings, it can be the motivation for new directions. Kandinsky wrote, ". . . a few dead signs where I lost my strength and which seemed to me sometimes the end of my work, were for the most part jumping-off points

and rest stops, which made possible the next step" (p. 44). This possibility is reinforced by a comment of Williams (1971) after having produced many Chorus Lines, "One day, dissatisfied, I threw several on the floor meaning to destroy them. As I walked about the studio, [I] suddenly saw the heap of cut out figures as Skins. In a stream of consciousness manifestation, I recognized that everything has a skin, even tables and chairs" (p. 6). There seems to be ample evidence, then, from both artists and others that a self-evaluate stage exists and that evaluative behaviors can lead an artist or critic back into later revision, reinforce the sense of unity and completeness, or lead to new future directions. It promises the same benefits for art students when time is reserved for them to use and recognize the value assigned to this stage.

In summary, the stages of inquiry in art include behaviors identified by Dewey as factors or phases of relective thought and as stages in the pattern of inquiry. The stages show relatedness to problem solving, critical thinking behaviors, and to other delineations of inquiry. The final stage in a description of scientific processes varies from the stages of inquiry in art in addition to the omission (as in most structures) of any parallel to the personal analysis stage. The structure of inquiry in art is compatible with creative process stages. The structure incorporates cognitive tasks and includes behaviors which have cognitive, affective, and psychomotor components. Thus, the structure of inquiry reflected in artists' statements has received credibility as a valid construct with its closest but not identical parallels being revealed in descriptions of inquiry.

Stage by stage, artists and inquiry theorists identify a level of expectancy and openness which is referred to as set a direction. A focus on what holds promise of producing useful information relates to the global appreciation of effect and is referred to as discover. Conceptualization is incorporated into inquiry in art as the inquirer employs intellectual skills of differentiation, analysis and classification in attending to the formal characteristics of phenomena observed (visually analyze, classify). The stage of personally analyze recognizes the importance of time to reflect on objective information acquired, to encourage subjective feelings or interpretations, and to allow for unique associations to take place which contribute to the individual nature of the inquiry and/or the product of that inquiry in art. The stage of select would include formation of hypotheses or application of rules or principles and generalizations identified. To reorder and change is espoused as necessary by all artists encountered in this search and that basic idea is also apparent in the inquiry models. The short, but important stage of synthesize brings the active formation to closure. The limited recognition in theoretical sources of revisitation and evaluation by the inquirer or artist is adequately countered by artists' testimony to the importance of the self-evaluate stage of inquiry in art.

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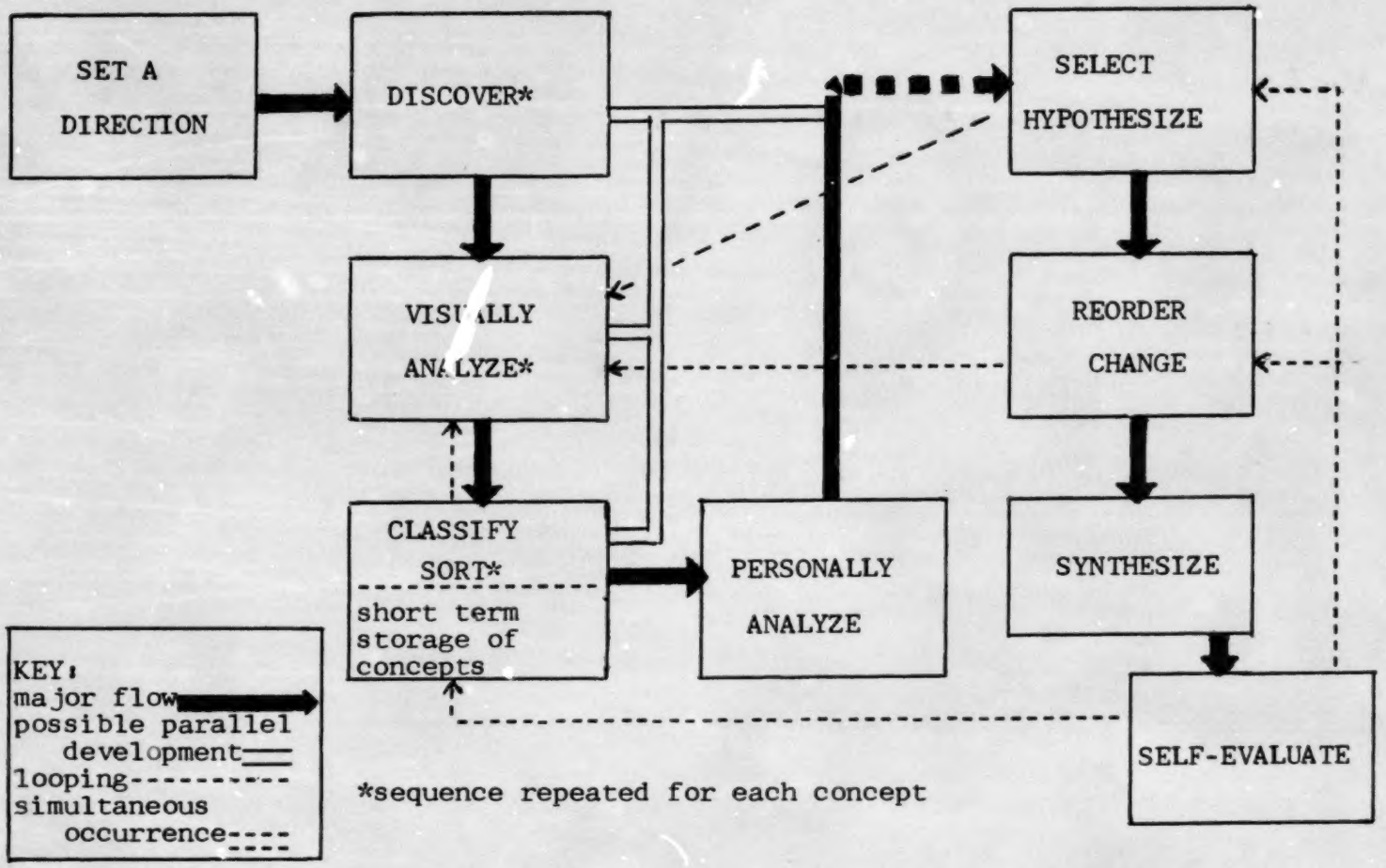
Figure Caption

Figure 1. General progression and relationships between stages of inquiry in art.


SET A DIRECTION
DISCOVER*
SELECT HYPOTHESIZE
VISUALLY ANALYZE*
REORDER CHANGE
CLASSIFY SORT*
short term storage of concepts
PERSONALLY ANALYZE
SYNTHESIZE
SELF-EVALUATE
KEY:
major flow
possible parallel development
looping
simultaneous occurrence
*sequence repeated for each concept